

February 16, 2000

**MEMORANDUM**

**TO:** Mark Dietrich  
Regional Administrator  
Pocatello Regional Office

**FROM:** Michael DuBois, Air Quality Analyst *MD*  
State Technical Services Office

**THROUGH:** Daniel Salgado  
Lead Process Engineering  
State Technical Services Office

**SUBJECT:** T2-000331, Jack B. Parson Companies, Soda Springs  
Technical Analysis, Tier II Operating Permit No. (#029-00009)  
Concrete Batch Plant

**PURPOSE**

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.404.04 (*Rules for the Control of Air Pollution in Idaho*) (*Rules*) for Tier II Operating Permits.

**PROJECT DESCRIPTION**

This project is for the issuance of a Tier II Operating Permit (OP) for Jack B. Parson Companies located at Soda Springs. The emissions sources of the facility are: concrete batch plant. The concrete batch plant's maximum hourly throughput is sixty cubic yards per hour (60.0 cy/hr). Electricity is supplied to the facility by the local utility.

**FACILITY DESCRIPTION**

Concrete is produced by combining water, sand and gravel, and Portland cement. A portable concrete batch plant consists of storage bins for the sand and gravel, a storage silo for the cement, weigh bins that weigh each component, a conveyor, a water supply, and a control panel. Sand and gravel are either produced on site or purchased elsewhere. Typically, three or four different sizes of gravel and one or two different sizes of sand are stockpiles for varying job specifications. Cement is delivered by truck and pneumatically transferred to its storage silo. A baghouse is mounted above the silo to capture cement as air is displaced in the silo. For this source category, the baghouse is considered process equipment primarily, and air pollution control equipment secondarily. Power to run the facility is provided by the local utility, or a gasoline-fired or diesel-fired generator.

After all the storage bins are filled, the production process begins when sand and gravel are drop-fed into their respective weigh bins. When a pre-determined amount of each is weighed, the sand and gravel is drop-fed onto an inclined conveyor which transfers the mixture into a cement truck. A pre-determined amount of cement is also weighed and drop-fed through a rubber chute into the cement truck. The rubber chute directs the cement and provides a measure of dust control. Sometimes, a separate baghouse is used to capture cement dust from the cement weigh bin. Water is then added, and the components are mixed in the truck on the way to the job site.

**Equipment Listing**

The analysis upon which this facility is permitted assumes the following equipment would be used:

**Portable Concrete Batch Plant**

Manufacturer	-	Johnson
Model	-	ND5yrd
Maximum Capacity (cy/hr)	-	60

### Cement Storage Silo Baghouse

Stack Height (ft)	-	35.0
Stack Diameter (ft)	-	2.44 (effective)
Exit Air Flowrate (acfm)	-	400
Capture Efficiency	-	99.9%

## SUMMARY OF EVENTS

On September 21, 2000, DEQ received an application for a Tier II OP from Jack. B. Parson Companies. On October 19, 2000, the application was declared complete. On November 30, 2000 a 30-day public comment period began. No public comments were received.

## DISCUSSION

### 1.0 Emission Estimates

A spreadsheet has been developed specifically for concrete batching facilities to determine their potential to emit (PTE). PTE is used to determine if Prevention of Significant Deterioration (PSD) or Title V Operating Permit requirements apply. In determining PTE, the spreadsheet uses production data supplied by the applicant and emission factors from EPA's AP-42. For concrete batching facilities, PTE is based on emissions from the cement storage silo baghouse, and the cement weigh bin baghouse (if one is used). If the facility includes a generator, its emissions are also included in the determination of the facility's PTE. Because these facilities are not designated facilities or NSPS-affected facilities, fugitive emissions from concrete batch plants do not count toward determining PTE. This facility's PTE is four tenths tons per any consecutive 12-month period (0.4 T/yr) based on PM<sub>10</sub> emissions.

The spreadsheet inherently limits emissions below certain triggering levels (i.e., PSD and Title V thresholds) by limiting throughput. If a generator is not used, throughput is solely limited to limit a facility's PTE below 99 T/yr of PM<sub>10</sub> emissions. If a generator is used, throughput is limited to protect the NAAQS and it is limited to keep emissions below the 99 T/yr triggering level. The throughput limits for this facility are presented below. The spreadsheet used to calculate the PTE and throughput limit is included as Appendix A of this document.

### 2.0 Attainment Area Operations

In the standard permit, two throughput limit options are available to choose from. One option limits annual throughput (annual is any consecutive 12-month period) only and the other option limits daily and annual throughput. The annual throughput limit option is chosen to limit emissions to 99 T/yr or less. This option is most likely chosen if the facility does not include a generator. The daily and annual limit is chosen when throughput has to be limited to protect the 24-hr PM<sub>10</sub> NAAQS and to limit facility emissions to 99 T/yr or less.

For this concrete batch plant, the concrete throughput is limited to five hundred twenty five thousand, six hundred cubic yards per consecutive 12-month period (525,600 cy/yr) while operating in any attainment or unclassifiable area.

### 3.0 Fugitive Emissions

Even though fugitive dust emissions are not included to determine PTE, they must be reasonably controlled at all times. In order to ensure the air quality is not degraded beyond the facility boundary, the standard permit requires that no visible emissions be seen crossing the facility boundary. It is assumed if no emissions visibly cross the boundary, the air quality is protected. This provision is included in the standard permit in lieu of fugitive dust modeling.

### 4.0 Modeling of Point Sources

#### 4.1 Baghouse(s)

The EPA-approved SCREEN3 model was used in this analysis using stack data provided by the applicant to predict the impact the baghouse emissions may have on the ambient air. A one (1) pound-per-hour emission rate was input into the model which calculated a maximum 1-hour concentration of 173.8  $\mu\text{g}/\text{m}^3$  for the cement silo baghouse. This information was input into the spreadsheet which calculated the allowable throughput.

The calculated emission rate for the silo is 0.084 pounds per hour (0.084 lbs/hr) resulting in a maximum 1-hour concentration of  $14.60 \mu\text{g}/\text{m}^3$ . The baghouse sits atop the cement silo at a height of 24.5 feet and is 126 inches tall and 34 inches on each side. The baghouse exhaust is comprised of two 8 inch x 21 inch vents located on opposite sides of the baghouse. These vents do not represent a conventional stack configuration, i.e., vertical orientation, as required for point source modeling using SCREEN 3. The baghouse exhaust was modeled as both an area and a point source using the reported flow rate through the combined area of the two exhaust vents. The more conservative point source results were used to determine the ambient air concentration.

5.0 Area Classification

Jack B. Parson Companies, Caribou County, Idaho, is located in AQCR (61). The area is classified as attainment or unclassifiable for all federal and state criteria air pollutants (i.e., PM, CO, NO<sub>x</sub>, VOCs, and SO<sub>x</sub>).

6.0 Facility Classification

This facility is not a major facility as defined in IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10. Portable concrete batch plants are not designated facilities as defined in IDAPA 58.01.01.006.27. Concrete batch plants are not subject to federal New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPS) regulation. The SIC code for concrete batch plants is 3273. The AIRS facility classification for this facility is "B" because the uncontrolled potential to emit is less than (100 T/yr). The spreadsheet included as Appendix A automatically determines the facility classification.

7.0 Regulatory Review

This OP is subject to the following permitting requirements:

a.	<u>IDAPA 58.01.01.401</u>	Tier II Operating Permit
b.	<u>IDAPA 58.01.01.403</u>	Permit Requirements for Tier II Sources
c.	<u>IDAPA 58.01.01.404.01(c)</u>	Opportunity for Public Comment
d.	<u>IDAPA 58.01.01.404.04</u>	Authority to Revise or Renew Operating Permits
e.	<u>IDAPA 58.01.01.406</u>	Obligation to Comply
f.	<u>IDAPA 58.01.01.470</u>	Permit Application Fees for Tier II Permits
g.	<u>IDAPA 58.01.01.625</u>	Visible Emission Limitation
h.	<u>IDAPA 58.01.01.650</u>	General Rules for the Control of Fugitive Dust

8.0 AIRS Information

Since each of these facilities is considered a new facility for AIRS purposes, an update to the AIRS data base is required. The information necessary to update the data base is included as Appendix B of this technical analysis.

FEES

The AIRS facility classification for this facility is "B" because the uncontrolled potential to emit is less than one hundred tons per year (100 T/yr), therefore, this facility is not subject to permit application fees.

RECOMMENDATIONS

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue a Tier II OP to Jack B. Parson Companies.

MD:bm 2058.8004 G:\VHW\DUBOIS\PERMITS\OP\TIER2\PARSONT2000331.TM

cc: R. Wilkosz  
M. Dietrich, Pocatello Regional Office  
DEQ State Office

## APPENDIX A

02/14/01

17:45:51

\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 96043 \*\*\*

T2-000331

## SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	0.126000
STACK HEIGHT (M)	=	10.6680
STK INSIDE DIAM (M)	=	0.7437
* STK EXIT VELOCITY (M/S)	=	0.4346
STK GAS EXIT TEMP (K)	=	293.1500
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	0.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	0.0000
MIN HORIZ BLDG DIM (M)	=	0.0000
MAX HORIZ BLDG DIM (M)	=	0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 0.000 M\*\*4/S\*\*3; MOM. FLUX = 0.026 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*

\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*

\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST	CONC	U10M	USTK	MIX HT	PLUME	SIGMA
SIGMA						
(M)	(UG/M**3)	STAB (M/S)	(M/S)	(M)	HT (M)	Y (M)

## Z (M) DWASH

Z (M)	DWASH						
1.	0.000	1	1.0	1.0	320.0	10.05	0.42
0.19	NO						
100.	172.9	3	1.0	1.0	320.0	10.04	12.47
7.45	NO						
200.	149.5	4	1.0	1.0	320.0	10.04	15.57
8.50	NO						
300.	137.5	5	1.0	1.0	10000.0	10.02	16.90
8.70	NO						
400.	137.3	6	1.0	1.0	10000.0	10.00	14.64
7.05	NO						
500.	126.3	6	1.0	1.0	10000.0	10.00	17.97
8.40	NO						
600.	110.5	6	1.0	1.0	10000.0	10.00	21.24
9.69	NO						
700.	95.30	6	1.0	1.0	10000.0	10.00	24.46
10.93	NO						
800.	82.54	6	1.0	1.0	10000.0	10.00	27.64
11.98	NO						
900.	72.01	6	1.0	1.0	10000.0	10.00	30.78
12.98	NO						
1000.	63.33	6	1.0	1.0	10000.0	10.00	33.89
13.96	NO						

## MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

95.	173.8	3	1.0	1.0	320.0	10.04	12.00
7.17	NO						

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE,  $X < 3 \cdot LB$

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----

SIMPLE TERRAIN	173.8	95.	0.
----------------	-------	-----	----

Company Name:	J. B. Parsons	Engineer:	M. DuBois
Project No.:	029-00009	Date:	10/17/00
Project:	STANDARD SPREADSHEET	File:	T200001.WK4
CONCRETE BATCH PLANTS			

Use New York Ambient Limits: 100 (-) TSP/yr

Concrete Batch Plant Information	
Facility Production Capacity:	60 (-) yd/yr
Maximum Annual Hours of Operation:	8,760 (-) hr/yr
Control Eff:	
Modelled 1-yr Concentration:	172.8 (-) µg/m <sup>3</sup> , at emission rate of 1 lb/yr
Background Control Eff:	99.00% %
Control Region:	
Modelled 1-yr Concentration:	0 (-) µg/m <sup>3</sup> , at emission rate of 1 lb/yr
Background Control Eff:	99.00% %

Generator Data Information	
Generator (VIN)	A 1000
	B
	A
	50
	6.8003
	560
	Conversion Factor 1340.7

Material Concentration	1-yr	3-yr	5-yr	7-yr	Annual
CO	11400		3120	NA	31.7
NO <sub>x</sub>		540		144	NA
SO <sub>x</sub>					23.5
TSP					

INPUT TO PREPARE TO CONSTRUCT PERMITS

Section	Value	Unit
Section A "Ambient Area Within New Collection"		
Section A.1.1 Facility Throughput Limits:		
Annual Throughput Limit	<<DOB>>	yd/yr
Daily Throughput Limit	<<DOB>>	yd/day
Annual Hours of Operation	NA	hr/yr
Daily Hours of Operation	NA	hr/day
Section C "Ambient Area Within Collection"		
Section C.1.3 Facility Throughput Limits:		
Annual Throughput Limit	360,000	yd/yr
Daily Throughput Limit	<<DOB>>	yd/day
Annual Hours of Operation	360,000	hr/yr
Daily Hours of Operation	NA	hr/day
Section B "Neighborhood Area"		
Section B.1.1 Facility Throughput Limits:		
Annual Throughput Limit	<<ANBOD>>	yd/yr
Daily Throughput Limit	<<ANBOD>>	yd/day
Annual Hours of Operation	NA	hr/yr
Daily Hours of Operation	NA	hr/day
Section D.1.5 Generator Hours of Operation:		
Daily Hours of Operation	NA	hr/day

PERMIT LIMITS TABLE

Material	Permit Limit	Control Region	Control Region	Control Region
Concrete Batch Plant	60 (-) yd/yr	240 yd/yr	5,760 yd/yr	4,380 yd/yr
Generator	50	240 yd/yr	5,760 yd/yr	4,380 yd/yr
CO 1-yr Standard	31.7	31.7	31.7	31.7
CO 3-yr Standard	31.7	31.7	31.7	31.7
CO 5-yr Standard	31.7	31.7	31.7	31.7
CO 7-yr Standard	31.7	31.7	31.7	31.7
CO Annual Standard	31.7	31.7	31.7	31.7
CO Daily Standard	31.7	31.7	31.7	31.7
CO Hourly Standard	31.7	31.7	31.7	31.7



**OUTLET**  
 POTENTIAL TO EXCEED - EXISTING ANALYSIS USING AVERAGE AIR QUALITY STANDARDS  
 Assessment: C. Westside Area

Concentration		Permitted Controlled Emission Rates	
Parameter	Units	Permitted	Controlled
PM <sub>10</sub>	g/m <sup>3</sup>	0.08	0.08
CO	g/m <sup>3</sup>	0.08	0.08
NO <sub>x</sub>	g/m <sup>3</sup>	0.08	0.08
SO <sub>x</sub>	g/m <sup>3</sup>	0.08	0.08
DOC	g/m <sup>3</sup>	0.08	0.08
DOC	g/m <sup>3</sup>	0.08	0.08

Assessment is based on: Uncontrolled: 0.1 Tons/yr Controlled: 0.1 Tons/yr PM<sub>10</sub> Classification

Exceedance Limits:	0.08
Operational Standards:	0.08
Throughput Limits:	0.08
Throughput Limits:	0.08

**ATTACHMENT 1 - CALCULATIONS**

Concentration		Permitted Controlled Emission Rates	
Parameter	Units	Permitted	Controlled
PM <sub>10</sub>	g/m <sup>3</sup>	0.08	0.08
CO	g/m <sup>3</sup>	0.08	0.08
NO <sub>x</sub>	g/m <sup>3</sup>	0.08	0.08
SO <sub>x</sub>	g/m <sup>3</sup>	0.08	0.08
DOC	g/m <sup>3</sup>	0.08	0.08
DOC	g/m <sup>3</sup>	0.08	0.08

Assessment is based on: Uncontrolled: 0.1 Tons/yr Controlled: 0.1 Tons/yr PM<sub>10</sub> Classification

Concentration		Permitted Controlled Emission Rates	
Parameter	Units	Permitted	Controlled
PM <sub>10</sub>	g/m <sup>3</sup>	0.08	0.08
CO	g/m <sup>3</sup>	0.08	0.08
NO <sub>x</sub>	g/m <sup>3</sup>	0.08	0.08
SO <sub>x</sub>	g/m <sup>3</sup>	0.08	0.08
DOC	g/m <sup>3</sup>	0.08	0.08
DOC	g/m <sup>3</sup>	0.08	0.08

	Pre-Exposure		Exposure		Post-Exposure	
	Time	PM	Time	PM	Time	PM
Low Dose (Low Dose)	10:00	10:00	10:00	10:00	10:00	10:00
High Dose (High Dose)	10:00	10:00	10:00	10:00	10:00	10:00

<sup>a</sup> As shown without TSP concentrations around 70-80 µg/m<sup>3</sup> in 2006.

[illegible]

Customer: <u>London Hill Country Insurance, Oklahoma</u>					
1-10, 11-16, 17-18 are recorded on an 11-16 for collecting					
	1-10	11-16	17-18	19-20	Amount Paid Month
1-10					
11-16					
17-18					
19-20					
21-22					
23-24					
25-26					
27-28					
29-30					
31-32					
33-34					
35-36					
37-38					
39-40					
41-42					
43-44					
45-46					
47-48					
49-50					
51-52					
53-54					
55-56					
57-58					
59-60					
61-62					
63-64					
65-66					
67-68					
69-70					
71-72					
73-74					
75-76					
77-78					
79-80					
81-82					
83-84					
85-86					
87-88					
89-90					
91-92					
93-94					
95-96					
97-98					
99-100					

Customer: <u>London Hill Country Insurance, Oklahoma</u>					
1-10, 11-16, 17-18 are recorded on an 11-16 for collecting					
	1-10	11-16	17-18	19-20	Amount Paid Month
1-10					
11-16					
17-18					
19-20					
21-22					
23-24					
25-26					
27-28					
29-30					
31-32					
33-34					
35-36					
37-38					
39-40					
41-42					
43-44					
45-46					
47-48					
49-50					
51-52					
53-54					
55-56					
57-58					
59-60					
61-62					
63-64					
65-66					
67-68					
69-70					
71-72					
73-74					
75-76					
77-78					
79-80					
81-82					
83-84					
85-86					
87-88					
89-90					
91-92					
93-94					
95-96					
97-98					
99-100					

[illegible]

## **APPENDIX B**

# **ABBREVIATED AIRS DATA ENTRY SHEET - CONCRETE BATCH PLANT**

Name of Facility: Jack B. Parson

AIRS/Permit #: 029-0009

Permit Issue Date: proposed

<b>Source/Emissions Unit Name</b> (25 spaces) (Please use name as indicated in permit)	<b>SCC #</b> (8 digit #)	<b>Air Program</b> (SIP/NESHAP/NSPS/PSD)
Flyash/Cement to Silo	30501199	
Diesel Generator	20200401	
Agg Handling/Piles	30500204	
Transit Mix Truck Loading	30501110	
Fugitives	30588801	
Property Boundary	30588801	

**RETURN TO PAT RAYNE**  
AIRS-PT.LST (9/95)